AMENDMENTS TO THE CLAIMS

The listing of claims provided below will replace all prior versions, and listings, of claims in the application.

Claims:

1. (currently amended) A process for preparing a 2-hydroxy carboxylic acid using a reusable catalyst, said process comprising the steps of:

(a) carbonylating an enol ester with carbon monoxide and a hydroxyl compound in the presence of a palladium catalyst and a solvent, at a temperature in the range of 50-250°C, at a pressure in the range of 50- 2000 psig, to obtain a carbonylated ester, wherein the palladium catalyst comprises a palladium phosphine complex and an organic ligand wherein one or more organic ligands ~~that~~ contain one or more ~~an~~ atoms selected from the group consisting of an oxygen atom, and a nitrogen atom~~, and a phosphorus atom~~;

(b) hydrolyzing the carbonylated ester with an acid catalyst at a temperature of 10-125°C to obtain a 2-hydroxy carboxylic acid; and

(c) separating the palladium catalyst for re-use .

2. (previously presented) The process of claim 1, wherein the molar concentration ratio of enol ester to palladium catalyst is in the range of 25:1 to 1,000:1.

3. (previously presented) The process of claim 1, wherein the molar concentration ratio of hydroxyl compound to enol ester is not less than one.

4. (previously presented) The process of claim 1, wherein the palladium catalyst is recycled for the carbonylation step.

5. (original) The process of claim 1, wherein the enol ester is an organic compound having formula R1C=C(R2)-O-Acyl, where Rl is H or an alkyl group containing 1-5 carbon atoms and R2 is H or an alkyl group containing 1-5 carbon atoms.

6. (original) The process of claim 1, wherein the hydroxyl compound has a formula R-OH, wherein R is selected from the group consisting of H, a primary alkyl group containing 1-7 carbon atoms, a secondary alkyl group containing 1-7 carbon atoms, and a tertiary alkyl group containing 1-7 carbon atoms.

7. (original) The process of claim 6, wherein the hydroxyl compound is selected from the group of consisting of water, methanol, ethanol, propanol, iso-propanol, butanol, iso-butanol, t-butanol and pentanol.

8. (currently amended) The process of claim 1, wherein the palladium catalyst ~~is selected from palladium (II) having~~ has the formula ABxCy ~~or palladium (0) compound having formula ABxCy~~, wherein

A is selected from the group consisting of palladium (II) and palladium (0),

B is an organic phosphine ligand containing one or more coordinating atoms selected from the group consisting of a nitrogen atom and~~/or~~ an oxygen atom ~~and/or phosphorus atoms~~,

C is a halogen atom selected from the group consisting of a F atom, a Cl atom, a Br atom and an I atom,

x+y is an integer ranging from 1 to 4, and

x and y can vary independently in the range of 0 to 4.

9. (cancelled).

10. (cancelled).

11. (previously presented) The process of claim 1, wherein the organic ligand is selected from the group consisting of acetyl acetonate, salicylaldehyde, and p-toluenesulphonic acid.

12. (previously presented) The process of claim 1, wherein the organic ligand is selected from the group consisting of pyridine, pipyridine, triethyl amine, tributyl amine, quinoline, isoquinoline, o-phenylenediamine, and p-phenylenediamine, ethylenediamine.

13. (currently amended) A process for preparing a 2-hydroxy carboxylic acid using a reusable catalyst, said process comprising the steps of:

(a) carbonylating an enol ester with carbon monoxide and a hydroxyl compound in the presence of a palladium catalyst and a solvent, at a temperature in the range of 50-250°C, at a pressure in the range of 50- 2000 psig, to obtain a carbonylated ester, wherein the palladium catalyst comprises a palladium phosphine complex and an organic ligand wherein one or more organic ligands ~~that~~ contains one or more ~~an~~ atoms selected from the group consisting of an oxygen atom, and a nitrogen atom~~, and a phosphorus atom~~;

(b) hydrolyzing the carbonylated ester with an acid catalyst at a temperature of 10-125°C to obtain a 2-hydroxy carboxylic acid,

wherein the organic ligand is selected from the group consisting of 8-hydroxy quinoline, bis(salicylidene)ethylenediamine, salicylaldoxime, picolinic acid, nicotinic acid, and anthranilic acid.

14. (previously presented) The process of claim 1, wherein the organic ligand is selected from the group consisting of trimethyl phosphine, triethyl phosphine, tri-n-butyl phosphine, phosphine, triphenyl phosphine, bis(dicyclohexylphosphinobutane), bis(diphenylphosphinopropane), and bis(diphenylphosphinohexane).

15. (original) The process of claim 1, wherein the solvent is an organic solvent selected from the group consisting of toluene, benzene, chloroform, dichloromethane,

dichloroethane, chlorobenzene, o-dichlorobenzene, p-dichlorobenzene, ketone, cyclic ether, and nitrile.

16. (original) The process of claim 15, wherein the ketone is selected from the group consisting of acetone, ethyl methyl ketone, diethyl ketone, and acetophenone.

17. (original) The process of claim 15, wherein the cyclic ether is selected from the group consisting of tetrahydrofuran and dioxan.

18. (original) The process of claim 15, wherein the nitrile is selected from the group consisting of acetonitrile and benzonitrile.

19. (previously presented) The process of claim 1, wherein the palladium catalyst is separated by vacuum distillation or solvent extraction.

20. (original) The process of claim 1, wherein the acid catalyst is selected from the group consisting of p-toluene sulphonic acid, aqueous hydrochloric acid, and a resin.

21. (original) The process of claim 1, wherein the hydrolysis catalyst is recycled for the hydrolysis step.

22. (original) The process of claim 1, further comprising separating by vacuum distillation or solvent extraction the acid catalyst.

23. (original) The process of claim 1, wherein the 2-hydroxy carboxylic acid is lactic acid.